PRODUCT DATASHEET

PFAS-Destruction Research Rig: SCWO, Electrochemical and Hydrothermal

Bench and pilot rigs that test supercritical-water, electrochemical and hydrothermal PFAS destruction

Product page





Close-up: SCWO reactor and back-pressure regulator

OVERVIEW

The Tech Inc. PFAS-Destruction Research Rig: SCWO, Electrochemical and Hydrothermal lets laboratories compare the main ways of destroying PFAS on their own foams, concentrates and rinse waters. A supercritical-water oxidation (SCWO) loop heats and pressurises the feed above the critical point of water with an oxidant; an electrochemical cell oxidises PFAS at high-potential anodes such as boron-doped diamond; a hydrothermal reactor treats the feed with alkali at high temperature.

TYPICAL DESIGN DATA

SCWO conditions	About 400 to 650 °C and 230 to 300 bar
Hydrothermal conditions	To about 350 °C at saturated pressure
Electrochemical	Boron-doped diamond or mixed-metal oxide anodes; DC supply with current control
Codes and standards	Pressure parts to ASME VIII and B31.3 practice; electrical to IEC 60204-1
Materials	C-276 or Alloy 625 wetted parts
Safety	Pressure relief, over-temperature trips, gas detection and remote operation
Analysis	Sample points for fluoride, total organic fluorine and LC-MS/MS

MODELS AND CAPACITIES

- **TI-PDR-SC1** – SCWO loop, about 1 L/h
- **TI-PDR-EC** – electrochemical rig, 1 to 5 L batch
- **TI-PDR-SC10** – SCWO pilot, about 10 L/h
- **TI-PDR-HT** – hydrothermal reactor, 0.5 to 2 L

Indicative feed rate or volume.

ORDERING CODE

Example **TI-PDR-SC1-C**: **SC1** type: SC1, SC10, EC or HT; **C** material: C C-276, I Alloy 625.

SCOPE OF SUPPLY

Included: factory acceptance test with a written report; drawings for approval, material certificates and manual. **Options:** online pH and fluoride measurement; second reactor type; gas scrubber; remote monitoring.

KEY ADVANTAGES

- **Three routes** – SCWO, electrochemical and hydrothermal
- **Alloy-built** – C-276 or 625 against fluoride
- **Mass balance** – sampling at every stream
- **Safe** – trips, relief and remote operation

Designed and built by Tech Inc. · **Part of the Davey Group since 1990**

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How to cite: PFAS-Destruction Research Rig: SCWO, Electrochemical and Hydrothermal (model TI-PDR). Tech Inc., Vaughan, Ontario, Canada. www.techincresearch.com/product-page/pfas-destruction-research-rig

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